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Hans-Jorg Bauder

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EXAMINER

YOON, KEVIN E

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,683	Applicant(s) BAUDER, HANS-JORG	
	Examiner Kevin E. Yoon	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/7/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20, 23-49 is/are rejected.
- 7) ☒ Claim(s) 21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/3/2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/3/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Power of Attorney

1. Applicant is reminded that there is no attorney of record at this time.

Drawings

2. The drawings are objected to because “Walzrichtung” in figures 1 and 16 has to be translated. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “equalizing process is carried out

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after all additional strips have been removed from the rolled second arrangements of strips” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because it exceeds 150 words. Correction is required. See MPEP § 608.01(b).

6. The disclosure is objected to because of the following informalities:

All the headings are missing in the specification.

On page 26, paragraph 2, line 7: "64" appears to be a typo of "46".

On page 27, paragraph 2, line 8: "43" appears to be a typo of "54".

On page 28, paragraph 2, line 14: "65" appears to be a typo of "64".

On page 32, paragraph 3, line 1: "20" appears to be a typo of "21".

Appropriate correction is required.

7. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

8. Claims 15-16, 27, and 43 are objected to because of the following informalities:

Claim 15 in line 2: "pm" appears to be a typo of "µm".

Claim 16 in line 2: "pm" appears to be a typo of "µm".

Claim 27 in line 7: second occurrence of "are" appears to be a typo of "area". Appropriate correction is required.

Claim 43, line 3: "more" appears to be a typo of "move".

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9. Claims 21 and 22 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claim 49 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for carrying out the equalizing process after at least one of the additional strips has been removed, does not reasonably provide enablement for carrying out the equalizing process after all additional strips have been removed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. Figures 1 and 6 show the equalizing roll stand (item 13) is in front of the winding-up winch (item 29) which winds up the additional strips. Therefore, the equalizing process cannot be carried out after all additional strips have been removed.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1, 3-5, 23-25, 35-36, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeuchi et al. (US 4,354,301, hereinafter Takeuchi).

Takeuchi teaches:

Re Claim 1. Method for producing a strip the width of which is defined by the two longitudinal edges thereof, which is made of at least one first metallic or predominantly metallic material, and in which the region, across which the first material extends, is provided with a boundary area that extends in staggered manner between the two longitudinal edges over the cross-section of the strip (figure 9), comprising the steps of

(a) combining strips of different widths (figure 8, item 5 and figure 9, item D), which contain the first material and which as such do not comprise a staggered boundary area between their two longitudinal edges (figure 9, item D), to form a first arrangement of strips having a staggered boundary area;

(b) complementing the first arrangement of strips by one or more additional strips (figure 8, item 6) to form a second arrangement of strips having a rectangular cross-section;

and (c) bonding at least the strips of the first arrangement of strips to each other by rolling (column 10, lines 16-20).

Re Claim 3. The method as defined in claim 1, wherein two cylindrical working rolls are used for rolling, which define between them a nip, and that the different strips from which the second arrangement of strips is formed are united only in or shortly before the nip.

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Takeuchi is silent on the issue of two cylindrical working rolls are used for rolling and that the different strips from which the second arrangement of strips is formed are united only in or shortly before the nip.

However, it is inherent to the invention of Takeuchi: i) to use two cylindrical working rolls, since they are required to perform rolling; and ii) to unite the second arrangement of strips in the nip, since one cannot unite the strips without performing a rolling process.

Re Claim 4. The method as defined in claim 1, wherein rolling is carried out as a cold-roll plating operation (column 6, lines 11-14).

Re Claim 5. The method as defined in claim 1, wherein rolling is carried out as a hot-roll plating operation (column 5, line 64-column 6, line 2).

Re Claim 23. The method as defined in claim 1, wherein the material of the one or of the additional strips (figure 6, item 6) is selected to be different from the first material (figure 6, item 5) and that all strips of the second arrangement of strips are bonded together by the rolling process (column 5, lines 59-64 & column 10, lines 16-20).

Re Claim 24. The method as defined in claim 1, wherein the strips used are strips which, apart from a plated layer which is thin compared with the thickness of the respective strip and which is to produce the bond during the rolling process, consist of a single material in their entirety (figure 6, item 6, column 5, lines 59-64).

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Re Claim 25. The method as defined in claim 24, wherein strips consisting of a homogenous material are used (figure 6, item 6, column 5, lines 59-64).

Takeuchi is silent on the issue of strips consisting of a homogeneous material. However, it is inherent to the invention of Takeuchi, since Oxygen-free copper is a homogeneous material.

Re Claim 35. The method as defined in claim 1, wherein the rolling process is carried out using a reduction per pass of 50% (column 5, line 64-column 6, line 2).

Re Claim 36. The method as defined in claim 35, wherein the rolling process is carried out using a reduction per pass of 60% to 80% (column 6, lines 11-14).

Re Claim 44. Method in which one or more of the strips produced according to claim 1 are used once more in a method according to claim 1 for producing a more complex strip (column 10, lines 26-30).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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15. Claims 2, 26-29, 34, 37, and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi.

The teachings of Takeuchi have been discussed above.

In addition, Takeuchi teaches that: **(re claim 27)** the first arrangement of strips comprises at least two strips arranged one beside and in parallel to each other so that their neighboring flanks are in contact with each other (figure 9), that the material properties of the flanks to be connected are determined in such a way that the contacting flanks can be caused by heating to form a material bond.

Since similar structures have similar properties, the material properties of flanks of Takeuchi are also capable of being determined by heating to form a material bond.

Takeuchi fails to specifically teach that: **(re claim 2)** the steps (a) and (b) are carried out simultaneously; **(re claim 26)** the strip is subjected to a heat-treatment after the rolling operation; **(re claim 27)** at least two strips are heated, at least in the are of their contacting flanks, to a temperature at which those flanks will then immediately form a material bond one with the other; and **(re claim 37)** the strips and/or the first or the second arrangement of strips are heated up after rolling to the temperature at which the flanks will be connected by a material bond.

Re Claim 2. However, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Takeuchi to perform the steps (a) and (b) simultaneously, since it would reduce the processing time.

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Re Claims 26-27 and 37. Examples 4-6 of Takeuchi teach to heat-treat the strips after the rolling so that an integrally bonded layer-structure plate is obtained through the interdiffusion between the metal sheets (column 7, lines 19-24 & column 8, lines 14-19 & 64-66).

In view of Examples 4-6 of Takeuchi, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Takeuchi to heat-treat the strips to the temperature at which the flanks will be connected by a material bond; since Takeuchi teaches the advantage of doing it, which is integrally bonding the layered structure (column 7, lines 19-24 & column 8, lines 14-19 & 64-66).

Re Claim 28. The method as defined in claim 27, wherein the second arrangement of strips is guided during the rolling operation so that its strips are prevented from moving to the side in the nip.

Takeuchi is silent on the issue of the second arrangement of strips being guided during the rolling operation. However, it is inherent to the invention of Takeuchi to guide the strips during rolling, since the width of the strips is remaining substantially unchanged during rolling (abstract), and it would prevent the strips from moving to the side in the nip.

Re Claim 29. The method as defined in claim 27, wherein the material properties of the flanks to be bonded one to the other are selected to be different (column 7, lines 12-18) so that, when the contacting flanks are heated, an alloy will form whose melting point is lower than the melting point of the strips to be connected in pairs at their flanks.

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Since similar structures have similar properties, the flanks of Takeuchi, which contains materials with different properties, would form an alloy whose melting point is lower than the melting point of the strips when heated.

Re Claim 34. The method as defined in claim 27, wherein the strips are pressed together by their flanks facing each other in the nip.

Since similar process produce similar results, the strips of Takeuchi are pressed together by their flanks during rolling process in the nip.

Re Claim 41. The method as defined in claim 27, wherein the strips in the first or the second arrangement of strips are heated up before the rolling operation to the temperature at which their flanks will form a material bond between them (column 7, lines 59-61).

Re Claim 42. The method as defined in claim 41, wherein the strips in the second arrangement of strips are heated immediately before rolling and are then rolled in hot condition (column 7, lines 59-61).

Re Claim 43. The method as defined in claim 41, wherein the first and the second arrangement of strips are guided already in the zone where they are heated so that their strips will not move to the side.

Takeuchi is silent on the issue of the first and second arrangement of strips being guided in the zone. However, it is inherent to the invention of Takeuchi to guide the strips, since the

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width of the strips is remaining substantially unchanged during rolling (abstract), and it would prevent the strips from moving to the side.

16. Claims 6-8 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Schumaker (US 3,835,681).

Takeuchi fails to specifically teach that: (re **claims 6 and 45**) the strip is equalized by an additional rolling operation after the roll-plating process; (re **claims 7 and 46**) the strip is wound up only after the equalization process; and (re **claims 8 and 47**) the strip is equalized between two equalizing rolls arranged downstream of the working rolls.

Schumaker discloses that the strip is undergoing additional rolling operation after the roll-plating process (figure 1b, item 56), which would equalize the strip, then the strip is wound up after the equalization process (figure 1b, item 64), and the strip is equalized between two equalizing rolls arranged downstream of the working rolls (column 3, lines 43-50).

In view of Schumaker, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of to equalize the strip with two rolls after the roll-plating process and wind up the strip; since Schumaker teaches the advantage of doing them, which is rolling the coils uninterruptedly (abstract).

17. Claims 9-11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Paulus et al. (US 4,423,120, hereinafter Paulus).

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Takeuchi fails to specifically teach that: (**re claim 9**) an intermediate layer, acting as intermediary in the bonding process, is arranged between the strips of the first arrangement of strips if and to the extent these cannot be bonded immediately by rolling.

Paulus teaches to use an intermediate layer (figure 1, item 6, column 2, lines 60-68) to improve bonding by rolling.

In view of Paulus, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Takeuchi to use an intermediate layer between the strips of the first arrangement of strips if and to the extent these cannot be bonded immediately by rolling; since Paulus teaches the advantage of doing it, which is bonding poorly laminatable materials by rolling (column 1, lines 5-9).

Re Claim 10. The method as defined in claim 9, wherein a separate strip is introduced into the first arrangement of strips for forming the intermediate layer (figure 1, item 6, column 2, lines 60-68).

Re Claim 11. The method as defined in claim 9, wherein the intermediate layer is bonded onto one or more of the strips that form the first arrangement of strips, before they are united to form the first arrangement of strips (figure 1, item 6).

If the intermediate layer of Paulus is used with the strips of Takeuchi, the layer would be bonded onto one or more of the strips that form the first arrangement of strips, before they are united to form the first arrangement of strips.

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Re Claim 13. The method as defined in claim 9, wherein the intermediate layer is selected to be thinner than the strips that are to be connected by it.

Re Claim 14. The method as defined in claim 9, wherein the intermediate layer is selected to be very much thinner than the strips that are to be connected by it.

18. Claims 12 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Paulus and Steigerwald et al. (US 4,248,921, hereinafter Steigerwald).

The teachings of Takeuchi in view of Paulus have been discussed above.

Takeuchi in view of Paulus fails to specifically teach that: (**re claim 12**) the intermediate layer is galvanically separated onto one or more of the strips that form the first arrangement of strips.

Steigerwald teaches to deposit a metal layer by galvanic separation to firmly connect the layer with the underlying structure (claim 1).

In view of Steigerwald, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined invention of Takeuchi in view of Paulus to deposit an intermediate layer by galvanic separation; since Steigerwald teaches the advantage of doing it, which is firmly connecting the layer with the underlying structure (claim 1).

Re Claim 15. The method as defined in claim 12, wherein the intermediate layer is applied by separation in a thickness of 10 pm maximally (Paulus, column 2, lines 11-14).

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Re **Claim 16**. The method as defined in claim 12, wherein intermediate layer is applied by separation in a thickness of 5 μ m maximally.

Takeuchi in view of Paulus and Steigerwald fails to specifically teach that the intermediate layer is applied by separation in a thickness of 5 μ m maximally. However, one of ordinary skilled in the art would recognize the need to adjust the thickness of layer depending on applications, discover the range by routine experimentations, and change the value as required.

19. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Hamanaka et al. (JP 61092790, cited by applicant, hereinafter Hamanaka).

Takeuchi fails to specifically teach that the material of one, more or all additional strips that complement the first arrangement of strips to form the second arrangement of strips is selected to ensure that it will form no or only a considerably weaker bond with the strips of the first arrangement of strips by the rolling operation than the strips, and that these additional strips, whose material is selected in the described way, is removed from the second arrangement of strips after the rolling process.

Hamanaka teaches that the additional strips do not bond to the first arrangement (abstract), and they are removed after the rolling process (figure 4).

In view of Hamanaka, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Takeuchi to use the additional strips that do no bond to the first arrangement and remove them after rolling; since Hamanaka teaches the advantage of doing them, which is reducing the cost (abstract).

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20. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Hamanaka and Baba et al. (JP 55040011, cited by applicant, hereinafter Baba).

The teachings of Takeuchi in view of Hamanaka have been discussed above.

Takeuchi in view of Hamanaka fails to teach that: (re **claim 18**) following the nip, the additional strips to be removed are pulled in a different direction than the composite strip to be produced, showing the stronger bond and contained the first arrangement of strips, and that the additional strips to be removed are removed in this way from the rolled second arrangement of strips; and (re **claim 19**) at the point where the additional strips to be removed separate from the composite strip showing the stronger bond, guide surfaces are provided between that composite strip and the one or more strips to be removed, which support the guiding effect that moves the strips in the respective direction of tension.

Baba teaches that: the additional strips (figure 1, item 2 to item 8) to be removed are pulled in a different direction than the composite strip to be produced (figure 1, item 4 to item 9); and a guide is provided where the additional strips are removed from the composite strips (figure 1, item 7).

In view of Baba, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined invention of Takeuchi in view of Hamanaka to remove the additional strips in a different direction and provide guide surfaces; since Baba teaches the advantage of doing it, which is reducing the cost (abstract).

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21. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Hamanaka, Baba, and Paulson et al. (US 3,850,729, hereinafter Paulson).

The teachings of Takeuchi in view of Hamanaka and Baba have been discussed above.

Takeuchi in view of Hamanaka and Baba fails to specifically teach that the guiding surfaces form one or more wedges.

Paulson teaches that the guiding surfaces form a wedge for separating the sheet (figure 9, item 66, column 7, lines 31-34).

In view of Paulson, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined invention of Takeuchi in view of Hamanaka and Baba to employ a wedge-shaped guiding surface; since Paulson teaches the advantage of using it, which is separating the sheet (column 7, lines 31-34).

22. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Slaughter (US 3,938,723).

Takeuchi fails to specifically teach that: **(re claim 30)** at least one of the strips to be connected in pairs at their flanks has the respective flank coated with a solder; and **(re claim 31)** at least one of the two strips is coated with the solder only on the respective flank.

Slaughter teaches to coat the strip with solder to bond (column 3, lines 6-9).

In view of Slaughter, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Takeuchi to coat the flank with a solder; since Slaughter teaches the advantage of doing it, which is bonding the strips (column 3, lines 6-9).

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23. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Slaughter and Delalle et al. (US 5,086,967, hereinafter Delalle).

The teachings of Takeuchi in view of Slaughter have been discussed above.

Takeuchi in view of Slaughter fails to specifically teach that the at least one strip is coated on its respective flank with a first metal, and the other strip is coated on its respective flank with a second metal and that as a result of the heating process these metals form the lower melting point alloy.

Delalle teaches to use two different solder strips for forming a solder connection (column 3, lines 37-42 & column 4, line 59-column 5, line 3).

In view of Delalle, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined invention of Takeuchi in view of Slaughter to coat the flank of one strip with first metal and coat the flank of the other strip with second metal; since Delalle teaches the advantage of doing it, which is controlling the flow of fused solder (column 5, lines 13-25).

24. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Slaughter and Steigerwald.

The teachings of Takeuchi in view of Slaughter have been discussed above.

Takeuchi in view of Slaughter fails to specifically teach that the respective flank is coated using a galvanic process.

Steigerwald teaches to deposit a metal layer by galvanic separation to firmly connect the layer with the underlying structure (claim 1).

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In view of Steigerwald, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined invention of Takeuchi in view of Slaughter to coat the flank using a galvanic process; since Steigerwald teaches the advantage of doing it, which is firmly connecting the layer with the underlying structure (claim 1).

25. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Schumaker and Emley (US 3,711,937).

The teachings of Takeuchi in view of Examples 4-6 of Takeuchi have been discussed above.

Takeuchi in view of Examples 4-6 of Takeuchi fails to specifically teach that the first arrangement of strips is wound up continuously after rolling and is then heated.

Schumaker teaches to wind up the strip after rolling (figure 1b, item 64, column 3, lines 43-50) and Emley teaches to heat treat the material after rolling (column 3, lines 23-28).

In view of Schumaker and Emley, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Takeuchi to wind up the strip continuously after rolling and then heat; since Schumaker and Emley teach the advantage of doing them; which are rolling the coils uninterruptedly (Schumaker, abstract) and providing an excellent bond (Emley, column 3, lines 55-57).

26. Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Raybould et al. (US 4,782,994, hereinafter Raybould).

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Takeuchi in view of Examples 4-6 of Takeuchi fails to specifically teach that: **(re claim 39)** the strips and/or the first or the second arrangement of strips are heated immediately after rolling.

Raybould teaches to heat the strip after rolling (figure 1, item 20, column 6, lines 35-38).

In view of Raybould, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the invention of Takeuchi to heat the strips and/or the first or the second arrangement of strips immediately after rolling; since Raybould teaches the advantage of doing it, which is improving the magnetic properties of strips (column 6, lines 47-52).

Re Claim 40. The method as defined in claim 39, wherein the strips and/or the first or the second arrangement of strips are passed through a heating zone at the same speed at which they leave the nip.

Raybould is silent on the issue of the speed of the strips and/or the first or the second arrangement of strips passing a heating zone and that of strips leaving the nip are the same.

However, it is inherent to the invention of Raybould to have the same speed for the strips leaving the nip and passing the heating zone; since the strip is continuous, the speed would be the same for leaving the nip and passing the zone.

27. Claims 48 and 49 rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Hamanaka, Schumaker, and Hino et al. (JP 10128424, hereinafter Hino).

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Takeuchi in view of Hamanaka and Schumaker teaches, as set forth in claims 5-8, 17, and 45-47:

Re Claims 48 and 49. The method as defined in claim 17, wherein rolling is carried out as a hot-roll plating operation (Takeuchi, column 5, line 64-column 6, line 2); and the strip is wound up only after the equalization process (Schumaker, figure 1b, item 64, column 3, lines 43-50).

Takeuchi in view of Hamanaka and Schumaker fails to teach that: **(re claim 48)** the equalizing process is carried out after at least one of the additional strips has been removed from the rolled second arrangement of strips; and **(re claim 49)** the equalizing process is carried out after all additional strips have been removed from the rolled second arrangement of strips.

Hino teaches to remove scales with a descaling device (figure 1, item 5) and then rolling (figure 1, item 6) to finish the plate to the final thickness (abstract).

In view of Hino, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined invention of Takeuchi in view of Hamanaka and Schumaker to carry out the equalizing process after at least one of the additional strips/all additional strips have been removed; since Hino teaches the advantage of doing it, which is finishing the plate to the final thickness (abstract).

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dion et al. (US 4,798,932) teaches the edge bonding of metal strips and guiding of strips while rolling.

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the art would have reasonably understood from the texts. Only specific portions of the texts have been pointed out to emphasize certain aspects of the prior art, however, each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin E. Yoon whose telephone number is 571-270-5932. The examiner can normally be reached on Monday-Thursday, 7:30 am-5:00 pm, every other Friday 7:30 am-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Examiner, Art Unit 1793

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2/12/09